



FEMA

NOV 17 2011

Mr. Elmo E. Collins, Jr.  
Regional Administrator  
U.S. Nuclear Regulatory Commission Region IV  
611 Ryan Plaza, Suite 400  
Arlington, Texas 76011-8064

Dear Mr. Collins:

I am forwarding a copy of the Final After Action Report for the Medical Services Drill held in Orange County on July 13, 2011, for the San Onofre Nuclear Generating Station (SONGS). The purpose of this exercise was to assess the level of state and local preparedness in responding to a radiological emergency. The final exercise report was prepared by the U.S. Department of Homeland Security's Federal Emergency Management Agency, Region IX Radiological Emergency Preparedness Program staff.

No deficiencies were identified during this exercise for the state of California or Orange County. There were no Areas Requiring Corrective Action (ARCA) identified as a result of the exercise.

Based on the evaluation of the July 13, 2011, Medical Services Drill, the offsite radiological emergency response plans for the state of California and the affected local jurisdictions site-specific to SONGS can be implemented, and are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at SONGS.

Therefore, the Code of Federal Regulations, Title 44 Part 350 interim approval of the offsite radiological emergency response plans and preparedness for the state of California, site-specific to SONGS, will remain in effect.

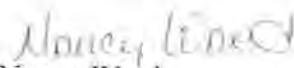
I would also like to take this opportunity to acknowledge the many individuals that participated in this successful exercise. Their dedication to this program was clearly evident.

Mr. Elmo E. Collins, Jr.

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If you have any questions or need additional information, please contact me at (510) 627-7100. Your staff may also contact Richard Echavarria, SONGS Site-Specialist, at (510) 627-7217, or Mr. James Macaulay, Acting Radiological Assistance Committee Chair, at (510) 627-7009.

Sincerely,

  
Nancy Ward  
Regional Administrator  
FEMA Region IX

Enclosure

cc: NRC Headquarters Document Control Desk  
US Nuclear Regulatory Commission  
Washington, DC 20555-0001

Vanessa Quinn, Chief  
Radiological Emergency Preparedness Branch  
FEMA Headquarters



San Onofre Nuclear Generating Station

# After Action Report/ Improvement Plan

Drill Date - July 13, 2011

Radiological Emergency Preparedness (REP) Program



**FEMA**

*Published September 26, 2011*

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## San Onofre Nuclear Generating Station

# After Action Report / Improvement Plan

Published September 26, 2011

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## EXECUTIVE SUMMARY

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) Region IX National Preparedness Division - Technological Hazards Branch evaluated an offsite medical services drill at the Saddleback Memorial Medical Center (SMMC) in San Clemente, California, on July 13, 2011. The SMMC is located in the Plume Exposure Pathway Emergency Planning Zone (EPZ) around San Onofre Nuclear Generating Station (SONGS). The purpose of the drill was to assess the level of state and local preparedness in response to a radiological emergency. The drill was held in accordance with FEMA's policies and guidance concerning the exercise of state and local Radiological Emergency Response Plans (RERP) and procedures.

The most recent biennial exercise at SONGS was conducted on April 12, 2011. The previous medical services drill was conducted on June 20, 2007, at the Saddleback Memorial Medical Center of San Clemente.

FEMA wishes to acknowledge the efforts of the many individuals who participated in this exercise. Protecting the public's health, and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought out this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork by all the participants was evident during the drill.

The organizations, except where noted, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Areas Requiring Corrective Action (ARCA) identified as a result of this drill. No previous ARCAs remain uncorrected from the 2007 drill.

# **SECTION 1: EXERCISE OVERVIEW**

## **1.1 Exercise Details**

**Exercise Name**

San Onofre Nuclear Generating Station

**Type of Exercise**

Drill

**Exercise Date**

July 13, 2011

**Program**

Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

**Scenario Type**

Radiological Emergency

## **1.2 Exercise Planning Team Leadership**

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### 1.3 Participating Organizations

Agencies and organizations of the following jurisdiction participated in the San Onofre Nuclear Generating Station drill:

- Risk Jurisdictions
  - Orange County Fire Authority
- Private Organizations
  - Saddleback Memorial Medical Center
  - San Onofre Nuclear Generating Station



## **SECTION 2: EXERCISE DESIGN SUMMARY**

### **2.1 Exercise Purpose and Design**

FEMA Region IX evaluated the medical services drill on July 13, 2011 to assess the capabilities of local emergency preparedness organizations in implementing their RERP and procedures to protect the public health and safety during a radiological emergency involving SONGS. The purpose of this report is to present the results and findings on the performance of the Offsite Response Organizations (ORO) during a simulated radiological emergency.

### **2.2 Exercise Objectives, Capabilities and Activities**

The exercise evaluation area criteria, contained in FEMA Federal Registration Notice, "Radiological Emergency Preparedness Evaluation Methodology," dated April 25, 2002, represent a functional translation of the planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1, Rev.1, "Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

The objectives of this exercise are as follows:

Criterion 1.e.1: Equipment and Supplies to Support Operations – Demonstrate that equipment, maps, displays, dosimetry, potassium iodide (KI) and other supplies are sufficient to support emergency operations. (NUREG-0654, H.7, 10; J.10.a, b, e; J.11; K3.a)

Criterion 3.a.1: Implementation of Emergency Worker Exposure Control – OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plans and procedures. Demonstrate that emergency workers periodically, and at the end of each mission, read their dosimeters and record the readings on the appropriate exposure record or chart. (NUREG-0654, K.3.a,b)

Criterion 6.d.1: Transportation and Treatment of Contaminated Injured Individuals – The facility/ORO has the appropriate space, adequate resources and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals. (NUREG-0654, F.2; H.10; K.5.a,b; L.1,4)

## **2.3 Scenario Summary**

This section contains a summary of the simulated sequence of events used as the basis for invoking emergency response actions by OROs during the SONGS medical services drill on July 13, 2011, submitted FEMA by the state of California and SONGS:

A loud crash and an individual screaming emanates from the Unit 3 Penetration Building Room 209. Upon investigation, workers find an individual lying in water that may be contaminated. The individual is bleeding and has significant injuries to the face and lower legs.

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## SECTION 3: ANALYSIS OF CAPABILITIES

### 3.1 Drill Evaluation and Results

Contained in this section are the results and findings, of the evaluation, of all jurisdictions and functional entities that participated in the July 13, 2011, medical services drill to test the offsite emergency response capabilities of state and local governments in the EPZ surrounding SONGS.

Each jurisdictional and functional entity was evaluated on its demonstration of criteria delineated in the exercise evaluation areas as outlined in the August 2002, Interim Radiological Emergency Preparedness (REP) Program Manual. Detailed information on the extent-of-play agreement used in this exercise is found in Appendix C of this report.

### 3.2 Summary Results of Drill Evaluation

The matrix illustrated in Table 3.1, presents the status of all exercise evaluation area criteria that were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise criteria are listed by number and demonstration status is indicated by the use of the following letters:

M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)

D - Deficiency assessed

A - ARCAs assessed or unresolved ARCAs from prior exercise

N - Not Demonstrated (Reason explained in Appendix C, extent-of-play agreement)

Presented below are definitions of the terms used in this section relative to criteria demonstration status.

- Met - Listing of the demonstrated exercise evaluation area criteria under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.
- Deficiency – Listing of the demonstrated exercise evaluation area criteria under

which one or more Deficiencies were assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.

- Area Requiring Corrective Action – Listing of the demonstrated exercise evaluation area criteria under which one or more ARCAs were assessed during the current exercise. Included is a description of the ARCAs assessed during this exercise and the recommended corrective actions to be demonstrated before or during the next medical services drill.
- Not Demonstrated – Listing of the exercise evaluation area criteria that were scheduled to be demonstrated during this exercise, but were not demonstrated and the reason they were not demonstrated.
- Prior Issue – Resolved – Descriptions of issues assessed during previous exercises that were resolved in this exercise and the corrective actions demonstrated.
- Prior Issue – Unresolved – Descriptions of issues assessed during prior exercises that were not resolved in this exercise. Included are the reasons the issues remain unresolved and recommended corrective actions to be demonstrated before or during the next medical services drill.

The following are classifications of types of issues that are discussed in this report:

- A Deficiency is defined in the FEMA Interim REP Program Manual, August 2002 as “...an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public in the vicinity of a nuclear plant.”
- An ARCA is defined in the FEMA Interim REP Program Manual, August 2002 as “...an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety.”

FEMA has developed a standardized system for numbering issues. This system is used to achieve consistency in numbering exercise issues among FEMA Regions and site specific exercise reports within each Region. It is also used to expedite tracking of exercise issues on a nationwide basis.

The identifying number for Deficiencies and ARCAs includes the following elements, with each

element separated by a hyphen (-).

- Plant Site Identifier – A two-digit number corresponding to the Utility Billable Plant Site Codes.
- Exercise Year – The last two digits of the year the exercise was conducted.
- Evaluation Area Criterion – A letter and number corresponding to the criteria in the FEMA REP Exercise Evaluation Methodology.
- Issue Classification Identifier – (D = Deficiency, A = ARCA)
- Exercise Issue Identification Number – A separate two-digit number assigned to each issue identified in the exercise.<sup>7</sup>

Table 3.1 - Summary of Drill Evaluation

<p style="text-align: center;">DATE: 2011-07-13 SITE: San Onofre Nuclear Generating Station, CA M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated</p>		OCFA Ambulance	SMMC
Emergency Operations Management			
Mobilization	1a1		
Facilities	1b1		
Direction and Control	1c1		
Communications Equipment	1d1		
Equip & Supplies to support operations	1e1	M	M
Protective Action Decision Making			
Emergency Worker Exposure Control	2a1		
Radiological Assessment and PARs	2b1		
Decisions for the Plume Phase -PADs	2b2		
PADs for protection of special populations	2c1		
Rad Assessment and Decision making for the Ingestion Exposure Pathway	2d1		
Rad Assessment and Decision making concerning Relocation, Reentry, and Return	2e1		
Protective Action Implementation			
Implementation of emergency worker exposure control	3a1	M	M
Implementation of KI decision	3b1		
Implementation of protective actions for special populations - EOCs	3c1		
Implementation of protective actions for Schools	3c2		
Implementation of traffic and access control	3d1		
Impediments to evacuation are identified and resolved	3d2		
Implementation of ingestion pathway decisions - availability/use of info	3e1		
Materials for Ingestion Pathway PADs are available	3e2		
Implementation of relocation, re-entry, and return decisions.	3f1		
Field Measurement and Analysis			
Adequate equipment for plume phase field measurements	4a1		
Field Teams obtain sufficient information	4a2		
Field Teams manage sample collection appropriately	4a3		
Post plume phase field measurements and sampling	4b1		
Laboratory operations	4c1		
Emergency Notification and Public Info			
Activation of the prompt alert and notification system	5a1		
Activation of the prompt alert and notification system - Fast Breaker	5a2		
Activation of the prompt alert and notification system - Exception areas	5a3		
Emergency information and instructions for the public and the media	5b1		
Support Operations/Facilities			
Mon / decon of evacuees and emergency workers, and registration of evacuees	6a1		
Mon / decon of emergency worker equipment	6b1		
Temporary care of evacuees	6c1		
Transportation and treatment of contaminated injured individuals	6d1	M	M

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## 3.3 Criteria Evaluation Summaries

### 3.3.1 Risk Jurisdictions

#### 3.3.1.1 Orange County Fire Authority Ambulance

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.e.1, 3.a.1, 6.d.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

### 3.3.2 Private Organizations

#### 3.3.2.1 Saddleback Memorial Medical Center

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.e.1, 3.a.1, 6.d.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

## SECTION 4: CONCLUSION

A medical services drill was conducted at the Saddleback Memorial Medical Center in San Clemente, California on July 13, 2011 to assess the capabilities of state and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving SONGS. The purpose of this exercise report is to present the exercise results and findings on the performance of the OROs during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the federal evaluation team, with final determinations made by the FEMA Region IX Regional Assistance Committee Chairperson and approved by the Regional Administrator.

No deficiencies were identified during this exercise for the state of California or Orange County.

Based on the evaluation of the July 13, 2011 medical services drill, the offsite radiological emergency response plans for the State of California and the affected local jurisdictions site specific to SONGS can be implemented, and are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at SONGS.



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## APPENDIX A: DRILL EVALUATORS AND TEAM LEADERS

DATE: 2011-07-13, SITE: San Onofre Nuclear Generating Station, CA

LOCATION	EVALUATOR	AGENCY
Orange County Fire Authority Ambulance	Katherine Nishihara	FEMA - Region IX
Saddleback Memorial Medical Center	Daryl Thome	ICFI
* Team Leader		

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## APPENDIX B: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
ARCA	Area Requiring Corrective Action
EPZ	Emergency Planning Zone
FEMA	Federal Emergency Management Agency
KI	Potassium Iodide
ORO	Offsite Response Organization
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plans
SMMC	Saddleback Memorial Medical Center
SONGS	San Onofre Nuclear Generating Station

## **APPENDIX C: EXERCISE PLAN**

The summary presented in this appendix is a compilation of exercise scenario materials submitted by the state of California and SONGS. This appendix contains the extent-of-play agreement prepared by the State of California and approved by FEMA Region IX to provide evaluators with guidance on expected actual demonstration of the evaluation area criteria.



## Emergency Plan Medical Exercise Saddleback Memorial Medical Center San Clemente Campus July 13, 2011



**San Onofre Nuclear Generating Station**



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## MEDICAL EMERGENCY PLAN EXERCISE

July 13, 2011

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## MEDICAL EMERGENCY PLAN EXERCISE

July 13, 2011

### Exercise Objectives

#### San Onofre Nuclear Generating Station Exercise Objectives

1. Demonstrate the ability of San Onofre Firefighters to respond to a radiation medical emergency.
2. Demonstrate the ability of San Onofre Security Officers to respond to a radiation medical emergency.
3. Demonstrate the ability of San Onofre Health Physics personnel to respond to a radiation medical emergency.

#### Saddleback Memorial Medical Center, San Clemente Campus and Orange County Fire Authority Exercise Objectives

The listed Exercise Evaluation Areas are taken from FEMA's Interim Radiological Emergency Preparedness Program (REP) Manual dated August 2002.

##### Criterion 1.e.1 - Equipment and Supplies to Support Operations

Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG-0654, H., J.10.a.b.e.f.j.k., 11, K.3.a.)

##### Criterion 3.a.1 - Implementation of Emergency Worker Exposure Control

Saddleback Memorial Medical Center, San Clemente Campus and Orange County Fire Authority issues appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plans and procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. (NUREG-0654, K.3.)

##### Criterion 6.d.1 - Transportation and Treatment of Contaminated Injured Individuals

Saddleback Memorial Medical Center, San Clemente Campus and Orange County Fire Authority has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals. (NUREG-0654, F.2, H.10., K.5.a.b., L.1., 4.)

#### Saddleback Memorial Medical Center, San Clemente Campus and Orange County Fire Authority Extent of Play

On July 13th from 8:00 am to 12:00 pm, Saddleback Memorial Medical Center, San Clemente Campus and Orange County Fire Authority, will conduct their Contaminated Injury Exercise. All activities associated with exercise will be based on existing plans, procedures, equipment and supplies needed to support an actual medical emergency, unless noted below.

No other Emergency Response Facilities or Reception Centers will be activated. Exercise Controllers will simulate radiological briefings for exercise participants. Play by Saddleback Memorial Medical Center, San Clemente Campus may be interrupted by an actual emergency. Attempts will be made to resume play at the end the actual emergency. If play is unable to resume, the remaining portions of the exercise may be demonstrated via interview with a designated representative of the hospital.

During the exercise, if a participant performs an evaluated activity unsatisfactorily, the FEMA Evaluator, after consultation with the Exercise Controller, will provide another opportunity for the participant to re-demonstrate the activity. Appropriate training may be given to the participant prior to the re-demonstration. If the activity is re-demonstrated satisfactorily, the issue would be documented in the exercise report that it was corrected during the exercise.



## MEDICAL EMERGENCY PLAN EXERCISE

July 13, 2011

### Sequence of Events

<u>CUE</u> CARD	TIME	LOCATION/CONTROLLERS	EVENT DESCRIPTION	ANTICIPATED RESPONSE
1	0730 0745 0745 0745 0815	SONGS Firefighter Controller OCFA Controller SONGS Security Controller SONGS HP Controller Hospital Controller	Pre-exercise Conditions	Review pre-exercise conditions.
2	0800	SONGS Lead Controller SONGS Firefighter Controller	Initiate - Conditions	Initiate on-site notifications of Firefighters, Operations, Health Physics, Security  Initiate off-site notification of OCFA Ambulance and Saddleback Memorial Medical Center.
3	~0815	SONGS HP Controller SONGS Firefighter Controller Hospital Controller	Evaluate Response to Patient	On-site and Off-site response conducted in accordance with procedures
4	~0900 ~1100	SONGS Lead Controller Exercise Lead Controller	Terminate Exercise	Exercise objectives satisfied.

## MEDICAL EMERGENCY PLAN EXERCISE

July 13, 2011

### Summary

#### PRE-EXERCISE BRIEFINGS

Pre-exercise briefing for onsite participants will occur at 0745. Offsite Participants will be briefed at 0800.

#### INITIAL CONDITIONS

At 8:00 am, a loud crash and an individual screaming emanates from the Unit 3 Penetration Building Room 209. Upon investigation, workers find an individual laying in water that may be contaminated. The individual is bleeding and has significant injuries to the face and lower legs.

#### EXPECTED RESPONSES

SONGS Firefighters are expected to;  
Be dispatched to the accident scene  
Set up their Incident Command System  
Notify Orange County Fire Authority (OCFA) Ambulance for transport  
Notify Saddleback Memorial Medical Center regarding the transport of a radiologically contaminated individual to their facility.  
Medically assess and properly packaged the patient for transport

SONGS Health Physics personnel are expected to;  
Provide proper radiological controls  
Brief OCFA personnel on radiological conditions  
Provide a technician to assist OCFA as per the Emergency Plan Medical Agreement  
Provide a technician to assist Saddleback Memorial Medical Centers per the Hospital's Emergency Plan Medical Agreement

SONGS Security is expected to;  
Provide crowd control at the accident scene  
Facilitate the on-site arrival of OCFA personnel

OCFA personnel are expected to;  
Respond to SONGS in a timely manner  
Receive a medical and radiological briefing  
Utilize proper techniques to minimize the spread of contamination  
Transport patient to the hospital  
Ensure they and their ambulance are radiologically monitored prior to being released

Saddleback Memorial Medical Center Staff are expected to;  
Setup Emergency Room for a radiologically contaminated patient according to procedure  
Institute appropriate radiological and contamination controls at the hospital  
Treat and decontaminate patient according to procedure

#### EXERCISE TERMINATION

The exercise will be closed out at SONGS when patient is transported off-site. This should occur at approximately 9:00 a.m. The exercise will be closed out at the hospital when the patient has been decontaminated and transported out of the emergency room and the affected staff successfully egresses from the contaminated area. This should occur at approximately 11:00 a.m. at the hospital. Upon termination, debriefings will be conducted at SONGS and the hospital by exercise controllers. All activities associated with the exercise should be completed by 12:00 p.m.



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